LISTING OF CLAIMS

1. (Original) A transformer for coupling signals between a transceiver and a transmission line, said transceiver including a driver circuit for supplying a transmit signal to said transformer and a receiver circuit for receiving a receive signal from said transformer, said transformer comprising:

a first port adapted to being coupled to the transmission line;

a second port adapted to being coupled to the driver circuit;

a third port adapted to being coupled to the receiver circuit;

a first winding part having a turns ratio of 1: n, where n >1, for coupling the transmit signal from said second port to said first port; and

a second winding part having a turns ratio of 1: m, where m < n, for coupling the receive signal from said first port to said third port.

2. (Original) A transformer according to claim 1, wherein m = 1.

3. (Original) A transformer according to claim 1, wherein n < 2m.

4. (Original) A transformer according to claim 1, wherein $m < \frac{1}{2} n$.

5. (Original) A line interface for coupling signals between a data transceiver and a transmission line having a load impedance Z, said line interface comprising:

a transformer;

a driver circuit for supplying a transmit signal from said data transceiver to said transformer; and

a receiver circuit for receiving a receive signal from said transformer,

wherein said transformer includes:

a first port coupled to said transmission line;

a second port coupled to said driver circuit;

a third port coupled to said receiver circuit;

a first winding part having a turns ratio of 1: n, where $n > 1$, for coupling the transmit signal from said second port to said first port; and

a second winding part having a turns ratio of 1: m, where $m < n$, for coupling the receive signal from said first port to said third port.

6. (Original) A line interface according to claim 5, wherein an effective input impedance at said second port is Z/n^2 when said third port is open.

7. (Original) A line interface according to claim 5, wherein an effective input impedance at said third port is Z/m^2 when said second port is open.

8. (Original) A line interface according to claim 5, wherein said receiver circuit includes:

a first sensing resistor having a resistance R; and

a second sensing resistor having a resistance 2mR/n.

9. (Original) A line interface according to claim 5, wherein $m = 1$.

10. (Original) A line interface according to claim 5, wherein $n < 2m$.

11. (Original) A line interface according to claim 5, wherein $m < \frac{1}{2}n$.

12. (Original) A line interface according to claim 5, wherein said driver circuit and said receiver circuit have a single-ended circuit structure.

13. (Original) A line interface according to claim 5, wherein said driver circuit and said receiver circuit have a differential circuit structure.

14. (Original) A line interface according to claim 5, wherein said driver circuit and said receiver circuit include a resistive hybrid circuit.

15. (Original) A line interface according to claim 5, wherein said driver circuit and said receiver circuit include a capacitive hybrid circuit.

16. (Original) A line interface according to claim 5, wherein said driver circuit and said receiver circuit include a passive hybrid circuit.

17. (Original) A line interface according to claim 5, wherein said line interface is adapted to an ADSL system.

18. (Original) A line interface according to claim 17, wherein said line driver is integrated in a single IC chip of an analog front end.

19. (Original) A line interface according to claim 18, wherein said receive circuit is integrated in said IC chip of the analog front end.

20. (Original) A line interface according to claim 17, wherein said receive circuit includes a receive signal amplifier.

21. (Original) A line interface according to claim 17, wherein said line driver operates with a supply voltage of about 5 V.

22. (Original) An apparatus for coupling signals between a transceiver and a transmission line via a multi-port transformer, said transceiver including a driver circuit and a receive circuit, said transformer including a line port, a transmit port, and a receive port, said apparatus comprising:

means for supplying a transmit signal from the driver circuit to the transmit port of the transformer;

means for providing a first path from the transmit port to the line port so as to couple the transmit signal to the transmission line, said first path having a coupling ratio of n, where $n > 1$;

means for supplying a receive signal from the transmission line to the line port of the transformer; and

means for providing a second path from the line port to the receive port so as to couple the receive signal to the receive circuit, said second path having a coupling ratio of 1/m, where $m < n$.

23. (Original) An apparatus according to claim 22,

wherein said first path includes a first winding part of the transformer, said first winding part having a turns ratio of 1: n,

and wherein said second path includes a second winding part of the transformer, said second winding part having a turns ratio of 1:m.

24. (Original) A method for coupling signals between a transceiver and a transmission line via a multi-port transformer, said transceiver including a driver circuit and a receive circuit, said transformer including a line port, a transmit port, and a receive port, said method comprising:

supplying a transmit signal from the driver circuit to the transmit port of the transformer;

providing a first path from the transmit port to the line port so as to couple the transmit signal to the transmission line, said first path having a coupling ratio of n, where $n > 1$;

supplying a receive signal from the transmission line to the line port of the transformer; and

providing a second path from the line port to the receive port so as to couple the receive signal to the receive circuit, said second path having a coupling ratio of 1/m, where $m < n$.

25. (Original) A method according to claim 24,

wherein said first path includes a first winding part of the transformer, said first winding part having a turns ratio of 1: n,

and wherein said second path includes a second winding part of the transformer, said second winding part having a turns ratio of 1:m.

26. (Original) A method according to claim 24, wherein $m = 1$.

27. (Original) A method according to claim 24, wherein $n < 2m$.

28. (Original) A method according to claim 24, wherein $m < \frac{1}{2}n$.